Universidade Estadual de Campinas

Instituto de Filosofia e Ciências Humanas

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Metaontological strategies and the debate about the ontology of mathematical objects

Estratégias meta-ontológicas e o debate de ontologia dos objetos matemáticos

CAMPINAS

2024

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Tese apresentada ao Instituto de Filosofia e Ciências Humanas da Universidade Estadual de Campinas como parte dos requisitos exigidos para a obtenção do título de Mestre em Filosofia.

Thesis presented to the Institute of Philosophy and Human Sciences of the University of Campinas in partial fulfillment of the requirements for the degree of Master in the area of Philosophy.

Orientador: Marco Antonio Caron Ruffino

Este exemplar corresponde à versão final da tese defendida pelo aluno Gabriel Andersen Eugênio, e orientada pelo Prof. Dr. Marco Antonio Caron Ruffino.

Campinas
2024

Ficha catalográfica
Universidade Estadual de Campinas
Biblioteca do Instituto de Filosofia e Ciências Humanas
Paulo Roberto de Oliveira - CRB 8/6272

Eugênio, Gabriel Andersen, 1996-
Eu44e Metaontolgical strategies and the debate about the ontology of mathematical objects / Gabriel Andersen Eugênio. – Campinas, SP : [s.n.], 2024.

Orientador: Marco Antonio Caron Ruffino.
Dissertação (mestrado) – Universidade Estadual de Campinas, Instituto de Filosofia e Ciências Humanas.

1. Ontologia. 2. Metafísica. I. Ruffino, Marco Antonio Caron, 1963-. II. Universidade Estadual de Campinas. Instituto de Filosofia e Ciências Humanas. III. Título.

Informações Complementares

Título em outro idioma: Estratégias meta-ontológicas e o debate de ontologia dos objetos matemáticos
Palavras-chave em inglês:
Ontology
Metaphysics
Área de concentração: Filosofia
Titulação: Mestre em Filosofia
Banca examinadora:
Marco Antonio Caron Ruffino [Orientador]
Italo Lins Lemos
Giorgio Venturi
Data de defesa: 29-02-2024
Programa de Pós-Graduação: Filosofia

Identificação e informações acadêmicas do(a) aluno(a)
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- Currículo Lattes do autor: http://lattes.cnpq.br/2300918836991434

Universidade Estadual de Campinas
Instituto de Filosofia e Ciências Humanas

A Comissão Julgadora dos trabalhos de Defesa de Dissertação de Mestrado, composta pelos Professores Doutores a seguir descritos, em sessão pública realizada em 29 de Fevereiro de 2024, considerou o candidato Gabriel Andersen Eugênio aprovado.

Prof. Dr. Marco Antonio Caron Ruffino
Prof. Dr. Italo Lins Lemos
Prof. Dr. Giorgio Venturi

A Ata de Defesa com as respectivas assinaturas dos membros encontra-se no SIGA/Sistema de Fluxo de Dissertações/Teses e na Coordenadoria do Programa de Pós-Graduação em Filosofia do Instituto de Filosofia e Ciências Humanas.

To Thaís, who helped to turn my path easier.

Agradecimentos

First of all, this work was only possible thanks to the University of Campinas (UNICAMP), which allowed me to participate in its postgraduate program and enjoy its academic structure, and to the São Paulo Research Foundation (FAPESP)[1], which has financially supported my research (process n^o 2022/00215-6), and enabled me to focus on the studies required for this dissertation. To them, I wish to express my deep gratitude.

In addition, this work received, directly or indirectly, aid from many professors and professionals in the field of philosophy. I would like to mention, Marco Ruffino, Giorgio Venturi, Raoni Arroyo, Italo Lemos, Amie Thomasson, Itala D'Ottaviano, and Pedro Merlussi. All of them have participated in this project through advice, text revisions with helpful comments, classes, and lectures, as well as good conversations and participation in events and study groups. To all of them, I would like to say that I am really glad to work with you all.

I cannot forget the good friends who helped me throughout my philosophical journey. I would like to highlight João Felipe, Mariana Fernandes, Mahan Vaz, Gabriel Maruchi, Ariston Sócrates, Sofia Meireles, Renato Valvassori, Alex Bispo, Rafael de Souza, Daniel Diniz, Iago Batistela, and Deiver de Melo. All of them were fundamental not only in providing tips and conversations (sometimes heated debates) about many aspects of philosophy but also as emotional support throughout the last two years. With them, I took part in several study groups that were essential for my development in philosophy.

Last but certainly not least, I would like to say a huge thank you to my family Vania A. Eugênio, Almir Eugênio, and Giovana Eugênio, who provided financial and psychological support even before I considered studying anything related to philosophy. I could not finish this acknowledgment without mentioning Thaís Duarte, who is my emotional pillar. Without these people, this essay would not have been possible.

[1]Fundação de Amparo à Pesquisa do Estado de São Paulo.

Resumo

A Ontologia é a área da filosofia preocupada com o estudo do que há; do que constitui a realidade. Mas qual é o melhor método para investigar o que há? Quando nos é permitido dizer que algo existe ou não? Essas são questões que a meta-ontologia tentará responder. Dessa forma, a ontologia dos objetos matemáticos buscará estudar a existência dos objetos matemáticos, já a meta-ontologia dirá como esse estudo pode ser realizado e quais são as conclusões que podemos tirar dele. A presente dissertação se propõe a introduzir tais debates além de investigar meta-ontologias que defendam que através da linguagem podemos ter respostas diretas aos questionamentos da ontologia da matemática. Ou seja, o estudo se concentrará na pesquisa dos modos como a meta-ontologia é usada contemporaneamente na resolução de questionamentos ontológicos como “números existem?".

Palavras-chave: Meta-ontologia; Ontologia; Objetos Matemáticos; Metafísica.

Abstract

Ontology is the area of philosophy concerned with the study of what there is; what constitutes reality. But what is the best method for investigating what there is? When are we allowed to say that something exists or not? These are questions that meta-ontology will try to answer. In this way, the ontology of mathematical objects will seek to study the existence of mathematical objects, while metaontology will tell us how this study can be carried out and what conclusions we can draw from it. This dissertation aims to introduce these debates and investigate meta-ontologies that argue that through language we can have direct answers to the questions posed by the ontology of mathematics. In other words, the study will focus on investigating the ways in which metaontology is used contemporaneously to resolve ontological questions such as “do numbers exist?".

Keywords: Metaontology; Ontology; Mathematical Objects; Metaphysics.

Contents

Introduction

Mathematical objects (for instance, numbers, functions, sets, etc.), as is well known by metaphysicians, are entities that might be very puzzling when we are trying to describe reality. This is so because, unlike ordinary objects (such as chairs, trees, birds, etc.), we cannot hear a number or smell a function. As the tradition of philosophy says, mathematical objects are abstract, which is opposed to concrete objects. Besides the difficulty of accommodating such entities in our view of reality, these objects tend to assume an important role in our daily lives and in scientific thought. Thus, it is very common to see a function playing a fundamental role in describing a movement on a physical theory, as well as we commonly see people using numbers to help them deal with their daily lives. Given their importance and the challenge to accommodate such entities in our metaphysical theory, philosophers have introduced these entities in debates about what exists or not. In other words, mathematical objects are traditionally an investigation subject for metaphysicians dealing with ontology.

Ontology, in turn, could be described as the area concerned with the study of the existence of entities; which entities we could say that *there are*. It is a classical area in philosophy that can be traced back to Aristotle, who, in Book four of *Metaphysics*, mentioned an investigation dealing with "being *qua* being" (*1003a 21*).[2] But was Willard V. Quine (1948) who became famously recognized as one of those responsible for reviving the debate in metaphysics and bringing ontology back to contemporary discussions. He assumes that the task of ontology is to draw a list of all the things there are. However, what we could expect to find and how we could investigate these objects are questions for metaontology. These, on the other hand, are inquiries concerned with the methodology of ontology. In metaontology, then, we investigate, among other things, what is the right way to answer ontological questions and what we could expect from this investigation. In other words, one of the main metaontological tasks is to investigate the appropriate methods for the study of ontology.

[2]Reference taken from Angioni, 2007.

In the literature of metaontology, we have a rivalry between the Quinean and Meinongian[3] positions. Their proposals differ in terms of the ontological weight given to quantification. Nevertheless, although this dispute provokes reflection on a methodology for ontology, it seems that we still have something missing. We still have a proliferation of positions without a pragmatic decision on how we can achieve ontological results through metaphysical investigations. Many have tried to move on from this traditional debate. Often revisiting a new theoretical framework. There are, for example, attempts to reinterpret Rudolf Carnap[4] as an attempt to provide a more pragmatic position for metaphysics. For example, as we are going to see, adepts of Easy Ontology follow some Carnapian positions and could advocate for the realist side.

One of those cases, that we would like to pay more attention to in this essay, is Amie Thomasson's *Easy Ontology*. According to her point of view, we could assume that existence is a formal notion related to the rules of usage of concepts.[5] Then, to answer questions about existence (i.e., ontological questions), the ontology work should be engaged in investigating these rules associated with the concept we are questioning the existence. What is important to highlight now is that it is a theory concerned with the methods and notions used in ontology. But, as soon as theories like this are placed in a context with a myriad of diverse ontological positions, depending on what notions we choose, we are taking part in an ontological debate.

It is worth noting that we are going to treat ontology not as something apart from metaphysics, but as an area inside of metaphysics. Consequently, we are going to assume that metaontology is also a sub-area of metametaphysics. Other remarks should be made, similar to the mathematical debate, we have a bunch of debates about other objects (properties, free will, ordinary objects, particles, etc.). These debates established a tradition of discussion. In such a way that there seems to be no possibility of anything like a convergence on the correct view. On the contrary, what we see in metaphysics is a profusion of new positions. That is why the question about the relevance, and the good methodology, of an ontological endeavor have been gaining space in contemporary debates. Then, the expectation is that an investigation on metaontology provides us with clarifications on what we should understand as "existence", how we should address it, and which questions are we answering in the ontology. Additionally, there is the motivation to

[3]An Austrian philosopher creator of a metaontological approach, rival to Quineanism, whose main thesis is that quantification does not imply existence. We will look at this in more depth in chapter **2**

[4]A philosopher member of Vienna Circle, but in this text, we will concern ourselves more with his metaontological positions (described in the article "Empiricism, semantics, and ontology" (1950).

[5]For more details see the explanations above or see Thomasson, 2015.

provide a principled way to choose metaphysical debates that would be worth the effort.

However, these methodological aspects are not always ontologically innocent. For instance, having a metaontology with many conditions to say that something exists is going to entail an ontology with fewer entities. That is, when we have a maximalism of conditions, few things could meet these conditions, which results in an ontology with not too many entities. Otherwise, having a minimalism of conditions is going to provide an inflated ontology. Furthermore, depending on how we work on the investigation of these entities, some changes ought to be made in other parts of metaphysics, because many debates in metaphysics rely on positions about the existence or not of some objects. This means that, depending on what we assume in metaontology, we can have changes in metametaphysics. More specifically, we could have changes in how much relevance we give to the metaphysical investigation, which problems metaphysicians should be concerned with, and how it is distinct from science (how to avoid some kind of rivalry with science).

Because of that, the present text has two goals. First, we aim to examine the relation between metaontology and ontology and to see how metaontological strategies could affect the results in ontology (depending on our metaontology, we could be committed to more or fewer entities). An interesting point to note here is that metaontology (as a method for ontology) is not a passive investigation of ontology, but has an influence on ontological results. The second goal is to show why Easy Ontology provides a better methodology for ontology, and why it gives us a better picture of the work of metaphysics. Having these two aims in mind, we thought that choosing, as a parameter, a specific debate in ontology would facilitate our investigations, which is why the present essay is going to focus on ontological debates involving mathematical objects. So, we are going to overview two debates: the discussion about the existence of mathematical objects (which will be taken as a case study in this text); and the current debate in metaontology. After that, we are going to center our attention on the developments of Easy Ontology. In doing so, we aim to make clearer what consequences we obtain in our ontology given our metaontological strategy, that is, how to trace the aforementioned relationship between metaontology and ontology. Moreover, we expect that this text tell us a good way to work with ontology.

As mentioned, throughout the text we are going to use the debates about mathematical objects as a parameter, so, in Chapter **1**, we will sum up the core idea of the dispute between realism and anti-realism expecting this to serve as a brief overview of what ontology is discussing about this subject. Chapter **2**, otherwise, will overview the metaontological literature, focusing on the debate between Quineans and Meinongians.

An alternative for these two positions is going to be presented in Chapter **3**, where it will be exposed the core idea of Easy Ontology. Finally, in Chapter **4**, will be presented how to continue working in metaphysics taking the Easy Ontological approach, what are their benefits, and how to surpass some critics. In addition to the proposed debate, another case study was presented showing that the metametaphysical derivations arising from Easy Ontology could be a useful tool for different discussions such as the attempts to establish a metaphysics of quantum mechanics.

Part I

An Overview

Chapter 1

The ontology of mathematical objects

It is not rare to hear the following: mathematics is the queen of sciences. Although this could be interpreted as a pretentious claim, philosophers are traditionally invested in studying the objects that mathematicians deal with daily. Moreover, it is a fact that mathematical entities are important in our daily lives. That is, we plausibly agree that mathematics is saying true propositions and that these propositions play a significant role in our lives. So, at least in a first glance, we would not hesitate to say that "$2 + 2 = 4$" expresses a true proposition. This is why explaining mathematical sentences and showing how we could acknowledge the entities they refer to is a worthwhile endeavor. However, in order to do that, we first need to know what kinds of entities we are dealing with.

As a matter of fact, we know that the entities that mathematicians study are very different from the entities that other scientists study. For example, a biologist could physically interact with the bird she studies, and a physicist could see the collision of two billiard balls in order to study the mechanics of collisions. This is quite different from what we see in mathematics. The mathematician could not see, smell, or hear the number. The number two does not have a location in space, and there is no time indexed to it (we could not trace the birth of the number two). Such aspects of mathematical objects are what made us call them *abstract*.

Without having to go deep into a complete characterization of what is an abstract object, it is good to understand that one of the deemed aspects of these objects is that, unlike concrete objects, they do not have causal powers.[1] That is, they do not have

[1]Even though this is not a precise description of what it is to be an abstract object (some could even say that it is a näive characterization), we have just tried to provide a rough characterization of why mathematical entities are commonly associated with abstract objects. For a full description of abstract

any causal interaction with us; different from a bowling ball, the set of even numbers does not have the power to hurt any part of someone's body and the way we get acquainted with them does not demand some causal interaction. So we cannot acknowledge their existence through some form of causation. Furthermore, a causal explanation does not show how the terms can refer to those abstract objects. Hence, if we say that mathematical objects are abstract, they have this causation powerlessness. This being the case, it goes against a principle, frequently called the Eleatic Principle, which says that only things with causal powers (roughly, concrete or ordinary objects) could be taken as existent.[2] Despite this, mathematicians very often formulate theorems and corollaries using terms that refer to mathematical objects. For example, as is well known, the Pythagorean theorem says that, in a right-angle triangle, the square of the hypotenuse is equal to the sum of the squares of the sides of the triangle. Whatever the object to which "the square of the hypotenuse" refers, if it is abstract, by the Eleatic principle, we could not say that it exists. However, this would mean that the terms used in mathematical theorems fail to refer to something. It sounds strange since mathematical theorems are paradigmatically considered true, and, at first glance, it seems plausible to accept that truth and reference are interrelated notions.[3] Thus, the core of this inquiry is the challenge of choosing which intuitions we could maintain and which we could get rid of. The question that emerges from these intuitions is about whether mathematical objects exist.

Summing up, then, we have the following philosophical problem:[4] (i) a sentence expresses a true proposition when its terms successfully refer; (ii) there are mathematical sentences that express true propositions (e.g., mathematical theorems); (iii) mathematical sentences refer to abstract objects; and (iv) we ought to count as existent only the concrete objects. Based on that scenario, we have a split of positions. Here, it would be more brief if we consider the duality between realism and anti-realism.[5] First, realism is a name that covers some positions, but the core idea is that mathematical objects exist. Platonism, which is one of the main realist positions, claims, against (iv), that mathematical objects exist, that they are abstract, and that they are independent of the mind.

objects, see Falguera *et al*, 2021.

[2] cf. Berto, 2012.

[3] Of course, some might claim that we can have a theory of truth not dependent on reference. Some could have, for example, a deflationary position on truth (see Glanzberg, 2023)

[4] There could be many characterizations of a philosophical problem, but here we are going to use it as a set of individually plausible propositions, that are contradictory taken together.

[5] The positions in the philosophy of mathematics are way more nuanced than that, but, as this chapter is more of an introduction for the ontology of mathematics, the division between realism and anti-realism could do the work.

Then, in the scenario traced above, platonists would accept (i),(ii), and (iii).[6] Intuitionist is an alternative realist position, which would also agree with (i), (ii), and (iii), but the difference resides on the fact that mathematical entities are constructs of human thought, that is, they are mind-dependent objects. The anti-realist path, otherwise, would defend that mathematical objects do not exist. Here, the most traditional way to deal with the problem above is to deny (ii) or (iii). Nominalism is the position that denies (iii), for this position, we could rephrase mathematical sentences in order to avoid reference to abstract objects. Furthermore, some anti-realists are going to focus more on denying (ii), they are the Fictionalists. For them, the mathematical discourse is useful despite the use of sentences that express false propositions.[7]

Additionally, regardless of what anyone might defend about the existence of mathematical objects, it is a fact that we use mathematical objects daily (e.g., we use numbers to count the scores of a game). Consequently, depending on what we claim about the existence or not of such objects, we ought to provide an explanation of how people get acquainted with mathematical entities. If we accept that there is some mathematical knowledge, and we accept that mathematical objects are not located in space-time, we need to explain this knowledge. As Paul Benacerraf (1973) pointed out, the endeavor of investigating the philosophy of mathematics has some objectives, one of them is to find a unified semantics for mathematical and non-mathematical discourse, and the other is to provide an epistemological approach for the entities proclaimed by mathematical theories. So, the question about the existence of mathematical entities goes side-by-side with the inquiry of how we get to know such things. For Fictionalists and Nominalists (anti-realists in general), the epistemological desideratum would not be a complex task, since they would not assume the existence of an abstract entity. We only need to assume that understanding the mathematical formalization is all there is to be known. However, if we assume a traditional semantic notion similar to the one exposed in (i), Nominalists (at least)[8] would claim that it does not provide a unified semantics between mathematical and non-mathematical discourse; we could get that "apple" is a term that refers to some object in the world (i.e., the apple fruit), but we could not say the same for terms like "π" since there is no object that it refers to.

[6]In the literature, there is the vision of John Stuart Mill, who did not believe in the existence of abstract entities but did believe in the existence of mathematical objects. He argued that numerical terms refer to aggregates of objects (see Shapiro, 2000 and Linnebo, 2017).

[7]It is good to note that, besides the name, a Fictionalist is not always committed to a strong analogy between the fictional and the mathematical discourse.

[8]For Fictionalists it would be a little different since most of them would accept that mathematical sentences do not express true propositions.

Nevertheless, for realists, the epistemic question is going to be a big concern. Platonist[9], as we saw, can be summarized as the view that supports the following: there are mathematical objects; they are abstract; and they are independent of language and thought.[10] Here the traditional semantics give us a unified position for mathematical and non-mathematical discourse; the terms in mathematical sentences refer to objects just like the terms in ordinary sentences. But how to solve the epistemological desideratum? In other words, how to explain our knowledge about such abstract objects as the mathematical ones? One famous explanation for how we acknowledge mathematical entities is through *abstraction principles* (we are going to see it better after when talking about the Neo-Fregean position). To abstract, here, is to "extract" a common feature from some equivalent things.[11] So, abstraction principles, roughly, are conditions that associate some equivalent relation we already know with some identity between mathematical terms. For example, two lines are parallel just when their directions are identical. We "extract", then, the common direction from the parallelism of the two lines. According to Bob Hale and Crispin Wright (2009), abstraction principles give us truth conditions for the identities involved. Thus, since we already know the equivalence relation and since, if the identity is true, the terms do have a referent, these principles give us a path to understanding how we grasp mathematical entities. An Intuitionist, otherwise, could have a more obvious path to attend the epistemological desideratum: since mathematical entities are abstract mind-dependent objects; they could defend, for example, that we get to know these entities because of some social construction that we absorb by living in a society.

Thus, besides the importance of mathematics for other sciences, it is also clear how important it is for philosophy. Their objects of work have shown a great puzzle that attracted many philosophers concerned with ontology. Certainly, the question about the existence of such entities is central to these debates, but many have used theoretical background from other areas of philosophy to resolve the ontological question about mathematical objects. For instance, whatever the answer to this ontological inquiry, we ought to understand how we get to know such entities. This discussion has clear effects on the debate about the existence of mathematical objects. Consequently, we have a great and traditional debate investigating whether mathematical entities exist or not. But we

[9]Here we ought to do a historical remark. The Platonism we are considering is different from, although inspired by, Plato's theory of mathematical objects. The historical Platonism defends, in addition to what has been said, an epistemic thesis of access to an ideal realm, from where we acknowledge such entities. The Platonism exposed in the present text does not need to be committed to this epistemic part of historical Platonism.

[10]For more details, see Linnebo, 2018.

[11]cf. Linnebo, 2017.

have a myriad of positions, that increase depending on which background the philosopher is using, that do not seem to converge toward some common response. These debates have occupied the thoughts of many metaphysicians for a long time. Nowadays, many have questioned whether we could get an answer from these discussions, or even, if we could, how can we get to that. So, many have taken these debates to a metaontological arena, which is an area we are going to overview next.

Chapter 2

Metaontology

2.1 The standard view

The question about the existence of things might be of concern to many philosophers since the birth of the western philosophical tradition. Many have inquired, for example, whether a god is commanding all of us, or if there is a fundamental element that grounds everything. But when we go to sciences, how reasonable it would be, for a philosopher, to question the existence of entities postulated by scientists? For Willard V. O. Quine, it would be a foolish position. According to what he called "naturalism",[1] philosophy should not intervene on scientific theories, it would be more reasonable for philosophy to focus on discussing scientific discoveries. Yet, how can we know which entities science is *ontologically committed* to? According to Quine's work, we need to paraphrase scientific sentences in order to clearly see which objects are bounded variables in such discourses. Since he had stipulated a clear method for metaphysicians to work in ontology and since his theory had provided a division of labor between philosophy and science (he showed the importance of metaphysical work without placing science and philosophy as rivals), Quine's work on ontology has influenced many metaphysicians. Nowadays, some versions and developments of his theory is called standard in metaontology.

2.1.1 Quine

In his text, "On What There Is" (1948), Quine proposed his ideas about the right way to investigate the existence of things. That is, Quine presented his first steps in the study of metaontology. Thus, here we are going to see what Quine understands as the main

[1] For more on this aspect of Quine's philosophy, see Hylton and Kemp, 2023.

objective of ontology, and how we could investigate that. Right from the start, he did not hesitate to say what is the main ontological goal: to answer "What is there?". Strictly speaking, the description of what the ontologist is doing is writing a list of all the things that exist and putting off the things that do not exist. Still, philosophers have strong disagreements about which items we need to include in that list, that is why Quine had reflected, along the entire text, about how to carry on this investigation.

He imagined a debate between himself and an imaginary philosopher called McX. Quine and McX disagree on their ontological position. McX believes that there is something that Quine maintains there is not. Despite the ontological disagreement, how should they discuss their positions? First, we have to know what we are committing ourselves to. For Quine, we ought to pay attention to the quantification structure of discourses. Then, we are going to search for claims like "there is something" in the discourse. In mathematics, for example, it is usual to find claims such as "There is a function that goes from A to B". In this case, for him, the discourse is committed to functions. They are the value of the variable, bounded by the "there is" quantifier. In Quine's words:

> "We can very easily involve ourselves in ontological commitments, by saying, e.g., that *there is something* (bound variable) which red houses and sunsets have in common; on that *there is something* which is a prime number between 1000 and 1010. But this is, essentially, the only way we can involve ourselves in ontological commitments: by our use of bound variables. [...] To be is, purely and simply, to be the value of a variable." (Quine, 1948, p. 31-32.)

That is, in order to find the ontological commitment of a discourse, we need to look at claims that could be at least translated to the form "$\exists x F x$", being "$\exists$" an existence quantifier and "F" an arbitrary property. However, this is not a criterion to say what there is, but a method to understand what certain discourses are saying there is. To tell what there is, we need to select the best discourses and see what they are positing.

Here we need to make the observation that for Quine philosophy should not have much influence on science (*naturalism*). In other words, it is not a role for philosophers to say what entities physics, for instance, should posit. Instead, it would be better for philosophers to reflect on the findings of science. Even though he did not work too much on this idea in the text we are discussing, he indicated it in passages like:

> "Our ontology is determined once we have fixed upon the over-all conceptual scheme which is to accommodate science in the broad-

> est sense; and the considerations which determine a reasonable construction of any part of that conceptual scheme, e.g. the biological or the physical part, are not different in kind from the considerations which determine a reasonable construction of the whole."(Quine, 1948, p. 36.)"

So, the discourses we are going to take into account are those that give a central role to science. The scientific discourse should, then, be the common ground from which we investigate what there is.

In sum, the Quinean view of metaontology can be described as the combination of three theses: (1) the aim of ontology is to answer "What is there?"; (2) we know that a discourse is committed with some entities when it could be placed as a variable bounded by an existential quantifier ($\exists x Fx$); and (3) we need to search these bounded variables in our best scientific discourses. Linking it with our original subjects (i.e., mathematical entities), we could say that things like numbers are of great importance in science, in fact, indispensable.[2] Because of that, some philosophers conclude that a Quinean metaontology would yield a realist position in the debate about the ontology of mathematical objects. So, for someone who investigates ontology and follows this path, the challenge would be to reconcile a clear denial of (iv)[3] and the intuition that we possess knowledge about mathematical objects. Otherwise, some nominalists would take Quine's thoughts as a motivation for a nominalization of scientific theories. The task for them is going to be to translate some scientific discourse in order to show that we need not quantify over mathematical entities (going against (iii)[4]).

So, it is evident that Quine clarified the debate about the existence. Nonetheless, we still have to choose a path of how to apply his ideas to the ontological debates. But, in any case, both paths have implications for the problem described in Chapter **1**, which means that someone taking a position should have these implications in mind. Moreover, many of the problems in ontology remain, we still do not know how we get acquainted with such abstract entities or, on the other way, how to do it in a manner that does not generate so many changes in mathematical theory.

[2]It is good to note that this is a famous argument, usually attributed to Quine, in favor of the realism of mathematical objects. For more details, see Shapiro, 2000 and Horsten, 2019.

[3]To remember, the claim that only concrete things exist.

[4]A reference to this project is Field, 1980.

2.1.2 Neo-Quineans

Assuming Quine's metaontology, we still have the problem of choosing the best theories (whereby we found the ontological commitments). Then, finding these theories became a problem for the Neo-Quineans. But, besides that, we ought to know how much the bounded variables are essential for each theory. For example, imagine that we have a theory that quantifies over holes. Then, someone would not be ashamed to say something like "There are holes in that piece of cheese". As we saw, this is going to indicate that we are ontologically committed to holes. Nevertheless, some philosophers might raise the point that we do not need to use holes as a bounded variable. We could translate the sentence to "That piece of cheese is perforated". In other words, such entities are not indispensable to our theory[5].

Because of that, for many Neo-Quineans, the work of ontology is to find sentences of the form $\exists x Fx$ in our theories and try to paraphrase them, in order to avoid reference to indispensable entities.[6] A famous result of this metaontology for the ontology of mathematics is the project of nominalization of mathematics. The point is that mathematical theories, and all scientific theories that use mathematical discourse, employ mathematical terms in order to facilitate communication. However, they do not need to be committed to such entities. For example, some astrologists could say "The number of moons of Mars is two", but a nominalist could propose the following paraphrase: "There is one thing that is a moon of Mars, there is another thing that is also a moon of Mars, and everything that is a moon of Mars is either the first or the second thing in question"[7]. With this second version, numbers are not placed as a bounded variable, so we could formulate the theory in order to avoid this commitment.

Moving away from the paraphrases, a Neo-Quinean could also remain with the commitments that the theories already have, but argue that there are different meanings for existence. The basic intuition is that being a number and being a person are distinct ways of being.[8] Hence, Neo-Quineans could account this intuition by distinguishing the quantification, for example: $\exists_c$ (concretely exist), and $\exists_a$ (abstractly exist). So, when physicists quantify over mathematical objects, they are committing with the $\exists_a$, and when they quantify over a particle, they are committing with $\exists_c$. Nevertheless, the most common position for Neo-Quineans is still an univocity of being. For these philosophers,

[5] cf. Berto and Plebani, 2015.

[6] Some kind of eliminativism, which is going to be mentioned after as opposed to Thomasson's approach.

[7] cf. Plebani, 2011.

[8] This idea is traced back to Aristotle (see Berto and Plebani, 2015).

the stronger intuition is that having different natures does not mean having different meanings of existence. So, the number of apples and the apples have one and only existence.

Therefore, many paths have been opened when adopting Quinean metaontology. That is, assuming that to exist is to be the value of a variable, proved to be a controversial theory, in the sense that its adoption led to a proliferation of discussions about paraphrases and modes of being. But this is how stands the standard debates in ontology. That is why many have tried to provide alternatives to the standard metaontology, which is what we are going to see with Meinongianism and Easy Ontology.

2.2 Meinongianism

In opposition to the standard Quinean theory, some[9] metaontological approaches have been gaining prominence in the debate. Meinongianism is one of these approaches. Many have tried to interpret Alexius Meinong, so there is no consensus on the best understanding of his ideas. What we are going to see here is a general overview of how the Meinongian approach generally stands in the debate of metaontology and how it opposes the standard views.

When Quine reflected on metaontology, he proposed, as we saw, a hypothetical debate between him and McX. In that case, McX believes in the existence of some object that Quine denies. McX's point is that, in order to deny the existence of something, e.g. Batman, we need to refer to that something. Then, in some sense, when we say a sentence like "there is no Batman", we need to affirm the existence of something before denying it. Quine's solution is to use Bertrand Russell's notion of definite description. Roughly, for Russell, if we have a sentence like "The present king of Brazil is bald", it ought to be understood as the following: there is an x that is the king of Brazil; for every y, if y is the present king of Brazil, y is identical to x; and x is bald.[10] According to Quine's reading of Russell, we could say meaningful sentences without assuming that there are such objects. To understand those sentences we have only to transform some names into descriptions. So, instead of "Batman", we would say "the hero in bat costume that lived in Gotham City". Then, for Quine, we could say meaningful statements about entities that do not exist.

[9]The use of "some" here is not arbitrary, it is employed to indicate that there are several attempts to put a Neo-Meinongianism in the debate. The aim of this section is not to show all of them, but rather to expose, in a general way, what are the common grounds for Meinongian metaontologies.

[10]In Krause (2017) there is a chapter that explains Russell's definite description with more details.

Meinongians, instead, have another perspective for this discussion. For them, we still could formulate meaningful statements referring to non-existent objects. The point here is that we need not presume the existence of these objects. If we could summarize this position in one phrase, it would be the following motto: quantification does not imply existence.[11] Following Meinongians, an important distinction that should be traced is between the existential status of an object (*Sein*) and the properties and features that these objects have (*Sosein*). So, when we are dealing with fictional characters, it would be no absurd to say that these objects do not exist. Nonetheless, it just tells us about the *Sein* of the objects, we still could evaluate the attribution of properties of these objects. That is, saying that "Spiderman is wealthy" is false, and saying that "Batman is wealthy" is true. Then, the objects can bear properties and be referred to in true statements, but still not exist. This is what Meinong called the *Principle of Independence*. Thus, in a Meinongian way, the response to the problem proposed by Quine will be that we could evaluate the attribution of properties without assuming the existence of the object. In other words, we could quantify over objects that do not exist.

It seems, then, that we need to make clear what is an object for Meinongian approaches. The most famous strategy[12] is through the *Unrestricted Comprehension Principle* (UCP), which says that any property characterizes an object and that this object has this corresponding property. It can be formulated as follows:

(UCP) For any condition Ax with free variables x, some objects satisfies Ax.

Nevertheless, (UCP) received many objections. Russell, for example, said that we can take inconsistent conditions as Ax (if $Ax =$ "x is a square and x is not a square", then, by (UCP), some object has this property). Moreover, Russell claimed that with (UCP) we could derive the existence of anything (if $Ax =$ "x is made of gold and x is a mountain and x exists", then we could derive the existence of a golden mountain). Because of that, many Neo-Meinongians diverge on how to characterize objects.

One alternative approach worth highlighting is the *Nuclear Meinongianism*, which says that only nuclear properties can characterize an object. Hence, we ought to have a division between nuclear and extranuclear properties. A property is called nuclear when it is crucial for the nature of some object. Following Terrence Parsons,[13] we have some examples such as: "being blue", "being tall", "having been kicked by Socrates", "being

[11] As we saw, it directly opposes the Quinean approach.
[12] Berto (2012) also calls it Naive Meinongianism.
[13] According to Berto (2012) and Parsons (1980) himself.

golden", "being a mountain", etc. On the other hand, we call a property extranuclear when it does not play any role in the nature of the object. For example, "exists", “is fictional”, “is possible”, “is worshipped by someone”, "is incomplete", etc. (Parson also classified these examples into four types: ontological, modal, intentional, and technical)[14]. The important result for this kind of neo-Meinongianism is that this enhanced comprehension principle could avoid the problems mentioned. First, we have that existence is an extranuclear property, so there is no problem related to deriving the existence of everything that has "exist" as a property (e.g., we avoid deriving the existence of a golden mountain). Further, since the negation of some nuclear property is not crucial for the nature of an object, i.e. it is extranuclear, inconsistent properties (such as "x is a square and x is not a square") are not going to characterize an object.

Another strategy claims that, instead of distinguishing two kinds of properties, we could differentiate the kinds of relations that occur between properties and individuals. This distinction could be motivated by the fact that in some cases we seem to predicate objects differently. For instance, it would sound correct to say that Ted Lasso[15] is a football coach, however, it seems that it is not in the same sense that saying that Abel Ferreira[16] is a football coach. Some will explain this intuition by appealing that the relation between Ted Lasso and the property "being a football coach", in the first case, is different from the case in which "being a football coach" is predicated to Abel Ferreira. Edward Zalta,[17] for example, would say that in the first case Abel Ferreira *exemplifies* "being a football coach", which is the usual copula between objects and predicates. There is not much to say about this type of predication, as it characterizes the usual relationship between object and predicate (just as we might say "the dress is blue", we could also assert that the dress exemplifies the predicate being blue). We could not say the same thing for Ted Lasso's case. For this variant of Meinongianism, called Dual-Copula, Ted Lasso *encodes* "being a football coach". This means that Ted Lasso is an abstract object that is determined by "being a football coach". Different from the ordinary sense, it is not exemplified by the predicate, like Abel Ferreira. A predicate that is encoded by an object is what defines such an object.[18]

For Dual-Copula Meinongianism, abstract entities do not exist, they exemplify "being non-existent". Then, proponents of such a view could stipulate the following

[14] cf. Berto, 2012.
[15] A fictional character depicted by a TV show also called "Ted Lasso".
[16] At the time of this text, Palmeiras' current coach.
[17] According to Berto (2012) and Zalta (1983) himself.
[18] Ordinary objects do not encode any predicate, but abstract objects could exemplify some predicate.

comprehension principle:

(DCCP) For any condition Ax with free variables x, some abstract objects encodes Ax.

This is going to solve the problems posed by Russell. For the inconsistent properties case, (DCCP) will describe the unique abstract object that encodes "x is a square and x is not a square", but, it does not mean that this object exemplifies the inconsistent pack of properties, which would violate the law of non-contradiction. Analogously, "x is made of gold and x is a mountain and x exists" could describe an abstract object that encodes such property, but that does not mean that this object exemplifies such property, which would be a problem. For Dual-Copula, the object that is a golden existent mountain is not made of gold, existent, or a mountain in the usual sense of "is".[19]

Besides the debates about the characterization of an object, since we are dealing with metaontology, Meinongians ought to provide a notion of existence that they deem relevant in debate. Maybe the common point for all of them is that "exist" is a (first-order) predicate. But here we have another split on the Neo-Meinongians because many of them diverge about how we should distinguish the things that could be predicated with exist and those that do not. One famous way is to appeal to the distinction between *existence* and *subsistence*. Then, we could say that to exist is an attribute for things that have causal powers or physical location. On the other hand, to subsist is to be coherent, or consistent, with the relevant notions. Another option, for those more inclined to an univocal notion of existence, still associates existence with physical aspects like space-time location and causal powers, but now we would say that the rest of the objects are just non-existent. In this way, we will no longer need to postulate modes of existence

The whole point here is that, with the Meinongian approach, we have a theory of objects which claims that we can discuss the attributes of all objects. Those that are existent and those that are non-existent. With a Meinongian theory, then, we have a clarification of the notions that are being used in ontology (the discussion of comprehension principle, for instance), as well as an ontology that reconciles some common intuitions of how fictional objects are predicated. Different from the Quineans, the Meinongians could stipulate some convergence. It seems that most of them would say that abstract objects are non-existent, and they could deal very well with the theorization of these objects. As we saw, we can discuss and deal with, for example, mathematical entities. What we are doing, in such situations, is debating the *Sosein* of the mathematical objects. In terms of

[19] cf. Berto, 2012.

the description we gave for the debates in the ontology of mathematical entities, maybe a Meinongian could pose that (i)-(iv) is not a real problem, since the terms could refer to non-existent objects.[20] However, it lacks some explanation of how we came to know such objects that result from a Meinongian position. That is, it is still not clear how we access some of the objects. If these objects are mere possibilities[21], it ought to be more clear, as a methodology, how we get acquainted with these objects. Some of them could be created, but we still ought to understand how Meinongianism could explain such a process of creation and by which process their terms entered our language.

[20]Perhaps, then, they ought to change (i) to avoid the relation between truth and reference.
[21]A possible object that exists in some possible world.

Part II

An Alternative

Chapter 3

Easy Ontology

3.1 Easy Ontology

Easy Ontology is the name, coined by Amie Thomasson,[1] referring to metaontological approaches based on two features: we could answer ontological questions using only conceptual work (and sometimes an empirical knowledge); and it allows that in some cases we could expose such conceptual work trough trivial inferences from undisputed premises.[2] As we will see, it means that we have a demystification of ontological debates and that the answer to ontological questions could be found straightforwardly through the rules of usage of the concepts in discussion.[3] According to her, we could see similar features being employed by Carnap and Neo-Fregeans.[4] So we can take them as theoretical references for what will be shown in section **3.1.3**. As we are about to see, Rudolf Carnap, with *internal* questions, could be interpreted as defending some kind of conceptual work in answering existential questions. As well as the Neo-Fregean approach, which, for Thomasson, allows to exhibit some preliminary idea of trivial inferences by using *abstraction principles*.

3.1.1 Carnap

In some sense, it seems plausible that to inquire about the existence of some entity, we need first to understand the linguistic background of such a concept. Suppose that we need to talk about a new kind of entity. To do so, we have to introduce, in our language,

[1] Her main work on this topic is *Ontology Made Easy* (Thomasson, 2015).

[2] cf. Thomasson, 2018.

[3] We will explain it later, but "easy" here does not mean that the ontological questions are resolved over a cup of tea, but rather that they are answered more directly than we tend to think.

[4] Here it is worth emphasizing that categorizing the Neo-Fregean approach as an Easy Ontology is not a common position. We placed them here to highlight some similarities between the use of *abstraction principles* and *rules of use*, which we are going to see.

a system in which we could speak about those entities. That is, we need a term to refer to this new kind of entity, we need also properties that could be applied to these entities, and we need rules of usage that tell us when is correct to use such terms. For example, to construct the framework of numbers (at least the natural ones), we need to add general terms like "numbers". Moreover, we need to add terms like "five", "seven", "ten", etc., and properties terms like "even", "odd", "prime", etc. Further, we need to have relation expressions (e.g., "lesser than"), operator expressions (e.g., "plus"), and numerical variables (e.g., *m*, *n*, etc.) and quantifiers ("for every *m*..."; "there is an *n*..."). This system of rules, terms, and properties is what Rudolf Carnap, in the text *Empiricism, Semantics, and Ontology* (1950), called a *linguistic framework*. By using this notion, Carnap reflected on the metaontology and exposed the distinction between *internal question* and *external question*. These notions are of great importance for metaontology, and that is what we are going to see in this section.

First, let us analyze a hypothetical augmentation of a linguistic framework as mentioned above: imagine that a physicist has discovered a new kind of subatomic particle. In this case, we already have a framework for subatomic particles, additionally, the physicists will include a term that names that particle, the properties that could be applied to this particle, what relation it is involved in, and when its name is correctly used (applied). After that, any other physicist, who is acquainted with this framework augmented by the new particle, is going to be able to tell when there is an instance of this particle. That is, she is going to know when the term (that name the new particle) is correctly used. So, if the physicist is discussing whether in this theory there is this particle in question, the answer will be straightforward. In other words, when we are dealing with ontological questions within the framework about subatomic particles, answering questions like "Are there such-and-such particles?" is going to be an easy task for someone familiar with the framework (in this case, given that the particle has been discovered, the answer will be "yes, there are"). This is what Carnap called internal questions.

To give a better illustration, another typical case of a question that is taken internally is the following: "Is there any even number between 100 and 110?". For someone familiar with the linguistic framework of numbers, the answer will be a straightforward "yes". So, in some sense, we could say that there is a number. Then a layperson could wonder why so many ontological debates if we already came up with an answer. Nevertheless, when we see the discussions in the ontological debate, that does not seem to be what the philosophers are searching for. As is commonly said, ontologists want to know what there *really* is in the world. As Carnap said:

> "What is now the nature of the philosophical question concerning the existence or reality of numbers? To begin with, there is the internal question which, together with the affirmative answer, can be formulated in the new terms, say, by "There are numbers" or, more explicitly, "There is an n such that n is a number". This statement follows from the analytic statement "five is a number" and is therefore itself analytic. [...] This makes it plausible to assume that those philosophers who treat the question of the existence of numbers as a serious philosophical problem and offer lengthy arguments on either side, do not have in mind the internal question." (Carnap, 1950, p.24-25.)

Thus, given that the philosophers are not taking ontological questions internally and that they want to know something more than what the framework tells us, how could we interpret the debates in ontology? For Carnap, the debates are best understood as external questions, which are questions that are concerned with the existence of the objects outside of the framework. For him, when a philosopher asks ontological and general questions, like "Are there numbers?", the best way to interpret it is as external to the framework of numbers, which could be understood as asking about the existence of the numbers as a framework; i.e., the existence of the numbers framework itself.

However, this characterization still does not provide us with a clear interpretation of the ontological debates. It is still not obvious what it means to ask about the existence of a framework. Even Carnap did not understand what these questions were searching for, that is why he called the ontological questions pseudo-questions. Nevertheless, he defends that we could have a charitable understanding that would reinterpret these questions as pragmatic. Then, the question turns to whether or not we should accept certain linguistic framework, i.e., "[w]e have to make the choice whether or not to accept and use the forms of expression for the framework in question" (Carnap 1950 p.23). Reinterpreting it as a pragmatical question reveals that for Carnap the debates in ontology are not dealing with matters of fact, as metaphysicians would think, but instead, with which concepts (or linguistic frameworks) we should accept in our language.

Summing up and putting it in the mathematical debate, if we want to answer questions as "Are there mathematical objects?" we could trivially answer it (affirmatively) internally to the framework. Yet, for Carnap, it does not seem plausible to interpret that the realists and the anti-realists are discussing this question internally. On the other hand, it is not clear what the disputants are aiming with this debate. Then, using Carnap metaontology, the greatest approach for maintaining the significance of this debate is to reinterpret the question about the existence of mathematical entities as asking whether

we should adopt or not such-and-such framework.

3.1.2 Neo-Fregean

As we saw, one of the main problems for a realist view in the ontology of mathematical objects is to explain the acquisition of knowledge of these entities. Paul Benacerraf (1973), for example, had famously wondered how to reconcile semantics for mathematical theories with a naturalistic conception of knowledge acquisition. Aiming to solve such problems, Bob Hale and Crispin Wright recovered the thoughts of Gottlob Frege, based especially on the *Die Grundlagen der Arithmetik* (1884), about the *logicism*,[5] and developed a new way to see the relation between the knowledge acquisition of mathematical theories and the objects that these theories refer to. Some might complain about placing this approach as Easy Ontology. But, apart from the deflationary view that commonly follows from Easy Ontologies, we will see that we could answer ontological questions in a trivial way, just like Thomasson's metaontology. Some philosophers, with Easy Ontological tendencies, could even say that the difference resides in the fact that Neo-Fregeans deal exclusively with mathematical objects.[6]

In *Grundlagen* Frege had stated the principle that says that we ought not to look at the meaning of a word isolated, but rather in the context of a proposition.[7] Then, when inquiring about how we could acknowledge a proposition embedded with terms referring to mathematical objects, we should investigate the whole proposition, not just the object referred to by the terms. Given this idea of Frege, the metaontological point, for Neo-Fregeans, is to provide an account of how meaning is conferred to the propositions in mathematics. Because of that, they use *abstraction principles* as a way to analyze identity propositions involving mathematical terms.

Abstraction principles, as we glanced briefly in Chapter **1**, are truth-conditions that expose a way to "extract" a common feature from entities in an equivalence relation. More formally, they are devices constituted by a biconditional, a relation (without the ontological weight) already understood (the right part), and a part with an identity (the left part) whose truth conditions are explained by the right part. Let us formulate a scheme of a general abstraction principle. So, we have the following:

[5] A theory in philosophy of mathematics that attempts to reduce mathematics to logic (for more details see Shapiro, 2000, Linnebo, 2017, and Horsten, 2019).

[6] Even if the Neo-Fregeans despise being put together with Easy Ontology, we could at least consider this theory as something that has influenced what we will see later about Thomasson.

[7] This is called the *Context Principle* (cf. Frege, 1884).

$\forall a \forall b$ ($\Sigma a = \Sigma b$ if and only if $R(a, b)$).

Where a and b are variables of a given type, R is understood as an equivalence relation[8] on entities of the type of a and b, and Σ is a term-forming operator that can be taken as a function from variables of a given type to objects. To make it clearer, it is good to look at some instances of abstraction principles. Two examples are often used to explain it: the directions (DIR),

(DIR) $dir(a) = dir(b)$ if and only of $a//b$;

and the Hume Principle (HP),

(HP) The number of F = The number of G if and only if the Fs and Gs are 1-1 related.

It is worth highlighting that, in both of these examples, we have an epistemological point of view, which assumes that the right side is already understood, and this is what explains the left side. On the other hand, we have an ontological point of view, because the right side exposes what the left side demands of the world in order to be true. Then, (DIR) shows us that to have the direction of two lines being identical, we just need to have these two lines parallel with each other. Just like the 1-1 relation between Fs and Gs.[9] Having this kind of relation just is to have that the numbers of Fs and Gs are equal[10].

In sum, abstraction principles correlate the truth conditions for the identities on the left side with the statements on the right side. Now, given the truth of the identities, it is guaranteed that the objects referred to exist. Thus, in the Neo-Fregean approach, we have a methodology based on language and conceptual analysis. As Thomasson sees it, this methodology could results in an easy way to respond to the ontological debate about the existence of mathematical objects, because knowing the abstraction principle is all we need to prove the existence of the objects in discussion. Not only that, but with this approach we already have an answer to how we get to know such entities. That is, Neo-Fregean metaontology results in a realist position in the ontological debate about mathematical objects.

[8] That is, a relation reflexive, symmetric, and transitive.

[9] It is easier to understand this relation with examples. In a shoe store, for instance, we might have that the set of right shoes and the set of left shoes can be matched. So, we have that each right shoe can be paired with a correspondent left shoe, and no shoe is left alone. Hence we say that the shoes are 1-1 related.

[10] For more details on the use of abstraction principle for metaontological purposes, see Hale and Wright (2009) and Berto and Plebani (2015)

3.1.3 Thomasson's approach

Let's return to the Carnapian division between internal and external questions. In the discussion above, we said that, for Carnap, internal questions do not provide a good description of what metaphysicians are inquiring about. When debating with metaphysicians fond of the standard view for metaontology, it is common to hear that they are searching what there *really* are (that is, in Carnap's sense, the external point of view). Amie Thomasson, instead, in her work *Ontology Made Easy* (2015), focused on the internal questions. That is, for her, answering the ontological questions conceptually is all there is to say about the existence of entities. But this is not said to minimize the importance of philosophy, but actually to understand the work of metaphysics. For Thomasson, answering ontological questions such as "Do numbers exist?" would be straightforward given that the rules of use of the terms are fulfilled. The point here is that (similar to Neo-Fregeans) when we have the fulfillment of the rules of use of a term, nothing more is needed to say that something exists

Before moving on to show Thomasson's developments, it is worth pointing out that the use of "easy" here is not to say that in her approach the answer could be discovered effortlessly. Let's get back to the physicist's case, mentioned in Carnap's section, where she is investigating some unknown particle. It might be the case that we do not even have the technology to analyze such particle. So, we would not say that the answer could be easily found in the sense that it is effortless. But we could say that the methods are clear. That is, the physicist will know when she found the aimed particle. This is the sense we are looking for. What we are about to see is not a method that turns the answers in ontology effortlessly founded, but rather is a method that makes clear in what parameters we are working with and tell us, straightforwardly, when we could say that something exists.

Thomasson argues that general terms (such as sortals) have rules of use. One of the types of rules is the application conditions. These are conditions that are meaning-constituting for a term,[11] that is, they establish the condition under which the term could succeed in referring or not. Mastering these rules allows the speaker to tell when a term is correctly applied or not. Remember that for Carnap a framework has rules of use for concepts inside it, then, anyone familiar with a certain framework masters the usage rules for the concepts in the framework. For example, someone acquainted with the

[11] Although, it is not the only condition that is meaning-constituting (we could also mention the co-application condition, for example), they are the condition we will focus on in the present text.

linguistic framework (in English) of ordinary objects[12] masters the rules that tell us that it is correctly using the term "cutlery" when in front of a knife or a fork. Further, it would sound strange if someone used "cutlery" in an attempt to refer to an oven. So, it seems that, in acquiring a linguistic framework, we apprehend some semantic rules that govern the way we use the terms, one of these is what Thomasson called application condition.[13]

For her, a formal notion of existence, which she deemed as a second-order predicate (a predicate of concepts), would be an association between application conditions and existence. This is based on the idea that once the application conditions for a term have been met, nothing more is needed for us to conclude that the entity corresponding to the term exists. We can think of examples of social entities. Let us say that the application condition for the term "marriage" can be written as the following conditional: "If two people declare their vows before a minister, then there is a marriage". Therefore, if we have the fact that the individuals a and b have declared their vows before a minister, this is enough to say that a and b are married. The application rule, together with the sentence "the individuals a and b declared their vows before a minister", allows us to conclude that there is a marriage. Another example can be drawn with playing cards, if we have 52 cards, there is nothing left for us to say that we have a deck of cards. It would not sound crazy if someone, pointing to a pile of 52 cards, equally divided into Clubs, Spades, Hearts, and Diamonds, uttered "Look! We have a deck." Taking that situation, if we consider that the application condition is met, we are allowed to use the term "deck", because to have a deck of cards just is to have such 52 cards.

Similarly, given the fulfillment of the application conditions for the term "K", we can infer the existence of the object K. Hence, Thomasson adopts a formal notion of existence according to the following scheme (E):

(E) Ks exist if and only if the application conditions actually associated with "K" are fulfilled.

As it was said, application conditions are semantic rules of use that are mastered when acquiring a linguistic framework. Mastering these rules makes it possible to assess whether a term is correctly applied. Moreover, we could notice that the (E) scheme uses the term "actually". This is so to avoid worlds in which K exists but not the term "K" or worlds with different application conditions for "K". It is worth noting, however, that the application

[12] For Carnap (1950), it is called the *world of things*.

[13] For more discussions on this, see Thomasson (2007) and Thomasson (2015) (especially the chapter 2).

conditions do not have to be enunciable. When learning how to use the term "chairs", for example, an English speaker could ostensively learn that this term is correctly applied in restaurant contexts. In other words, even though it is not enunciable, the term "chair" can have application conditions, which help the speaker to determine whether the term has been correctly applied.

One first implication for this approach is that it goes against eliminativist tendencies, which claim, against ordinary objects, that we could have an ontology with only fundamental particles (as those postulated by physics). These particles arrange themselves in some particular ways and we usually give them names. For example, when these fundamental particles are arranged in the shape of a chair, we call it a chair. One of those eliminativists is Peter van Inwagen, who said that

> all the activities apparently carried out by shelves and stars and other artifacts and natural bodies can be understood as disguised cooperative activities [of simples properly arranged]. And, therefore, we are not forced to grant existence to any artifacts or natural bodies. (1990, 122 apud Thomasson, 2007, p.9.)

So, for this view, we should not accept as existent the things that are mere arrangements of particles. Ultimately, this means that, when investigating our ontological commitments, we should change, for instance, "chair" to "particles arranged chairwise". For Thomasson, instead, that change does not make any sense. We do not need anything more to go from "particles arranged chairwise" to "chair". The rules that govern the usage of the term "chair" allow us to apply it anytime we can use "particles arranged chairwise", which allows us to commute these expressions according to the situation. The eliminativist mistake is not being aware of the conditions under which terms like 'chair' are applied.

With the scheme (E) in hand, we could easily answer whether some entity exists. By mastering the linguistic framework,[14] we master the application conditions for the terms involved in the framework. Then, someone acquainted with the framework in discussion will know when the terms are correctly applied. For example, when we are dealing with a framework that includes number terms, like a framework in mathematics, it would be trivial to discover whether numbers exist, we just need to verify if numerical terms (e.g., 'two') are correctly used. A good way to visualize it is through trivial inferences from undisputed premises.[15] With these inferences, we can show that, through

[14] Still highlighting that this notion of the framework is the same used by Carnap (1950).

[15] 'Undisputed' in the sense that it does not use the term (or expressions coextensive) that refer to the object of the debate.

a transformation rule that represents an application condition, it is possible to draw an ontological conclusion from an "innocent" sentence. Something like the following case:[16]

1. Do properties exist?

   Undisputed premises This book is red.

   Rule If B is R, then B has the property of R-ness.

   Sentence transformed This book has the property of redness.

   Ontological Conclusion There is a property (namely redness).

2. Do numbers exist?

   Undisputed premises Gabriel ate five candies.

   Rule If P ate N candies, the number of candies P ate is N.

   Sentence transformed The number of candies Gabriel ate was five.

   Ontological Conclusion There is a number (namely five)

These trivial inferences make explicit how rules of use help us to transform a claim out of debate into one that yields an ontological conclusion. In this way, those who defend Easy Ontology can show how to answer ontology debates (more specifically, debates involving the existence of properties and numbers) in a simple and straightforward way. As a result, the metaontological approach described will yield an ontology that gives positive answers to the questions "Do numbers exist?", "Do events exist ?", "Do chairs exist?", etc. In other words, the metaontology that defends an Easy Ontology will result in realism about the objects in question.

Another aspect of these trivial inferences is that they expose the path through which we get to know the entities in dispute. If we remember the examples used in the section talking about Carnap, we had situations in which we wondered how to introduce new terms in a pre-existent linguistic framework. One of the demands is that we ought to provide a rule that says when the new terms are correctly used. Here the application conditions could be thought of as a theoretical device that fulfills this role. They could be deemed as the rules we use to introduce such terms in a linguistic framework. Moreover, just like the use of abstraction principles, in which we "extract" some identity (ontologically weighted) from an already known equivalence relation, for Thomasson's Easy Ontological

[16]It is worth saying that not all ontological problems could be stated in the form of a trivial inference, still it is a good way to see how we could use rules of usage to derive an answer to ontological questions.

approach we "extract" the ontological conclusion from rules already known (we know when we master the framework). That is, to answer the epistemological desiderata, Easy Ontology will follow a path akin to the one followed by Neo-Fregeans. According to her, we could even describe the use of abstraction principles in a way similar to the trivial inferences exhibited.

Undisputed claim The cups and saucers are 1-1 related (or we could say that they are equinumerous).

Abstraction Principle (HP) The number of F = The number of G if and only if the Fs and Gs are 1-1 related.

Sentence transformed The number of cups = The number of saucers.[17]

Thinking in this way, then, we could understand how we grasped such entities: we grasp them when we learn the framework. The entities that we infer the existence through trivial inferences are not unattainable abstract objects, we grasp them through language and the process is exposed in inferences like the ones shown above. For instance, mathematical entities could be known through some rules like the ones exposed by the abstraction principles.

It is worth noting, however, that Thomasson does not argue that the objects in dispute exist in distinct or deflated ways.[18] For her, these entities exist and that is all there is to say. This is because trivial inferences (like 1 and 2) ought to be interpreted as articulations of rules of use from which we infer the existence of those objects in dispute. So, if we take the idea that trivial inferences lead to the conclusion that the entities in dispute exist, then, having that a sortal "N" has been used according to the rules of use (associated with "N"), we must conclude that N exists (in the only sense that "N" has). Similarly, if "number" or "property" are being used according to the rules of use, we must affirm the existence of these entities, in the only senses that "numbers" and "properties" have.

Thus, Thomasson's metaontology defends that we could answer ontological questions using conceptual work (and sometimes with some empirical knowledge, like in the chair's case). Moreover, the answer will be in accordance with realism, for instance, it will result in a realist position in the debate about mathematical entities. But, as Carnap has noted, this is not exactly what metaphysicians had intended to investigate. How, then, could we interpret the practices in metaphysics? This question has some consequences:

[17] Cf. Thomasson 2020.

[18] She says that her metaontology is deflationary, but the existence of the objects is not what is deflated. In her words: "What is deflated is not the entities, but the ontological debates about the entities" (Thomasson, 2015, p.154.)

we need to answer whether Easy Ontology changes the way we understand the debates in metaphysics, and if it does we need to reflect on whether Easy Ontology maintains the importance of metaphysical debates. Moreover, depending on the resolution, we need to investigate how we can progress the works in metaphysics given this reconceptualization. In any case, we ought to investigate how the adoption of such metaontology affects the rest of metaphysics, and this is what we are going to see next.

Chapter 4

What remains to be answered

4.1 Some Objections

Within the ontological debate, metaontologies that defend an Easy approach to ontology are still new. Thus, in the literature concerned with metaontological developments, there are still certain reservations about adopting a methodology that answers ontological queries easily in the sense exposed above. Because of that, some points deserve better explanation, and some problems, that could be raised against easy ontologies, should be answered (or at least we need to have a path for future advocates to answer). In general, these problems allude to the Neo-Fregean strategy, but it is also possible to problematize the approach of Thomasson's easy ontology under the same parameters. Below we will look at some points that can be raised against Easy Ontologies, and how these points could be dealt with.

Some philosophers might wonder, for example, how linguistic principles guarantee the existence of real entities. In other words: application conditions are fundamentally linguistic, objects, on the other hand, are entities in the world. So, how can linguistic principles guarantee the existence of real entities? Some objectors could say that it seems that, through Thomasson's approach, the linguistic principles are creating entities in the world, as if by magic; as if we are taking a rabbit out of a hat. However, this questioning is based on a misinterpretation of easy approaches to ontology, which deserves further explanation. Trivial inferences allow us to infer that there are the objects under discussion, but they do not create the objects. The conceptual analysis used in easy ontologies, which starts from an undisputed sentence and the rules for using the terms involved, can introduce new terms such as "propositions", "numbers", "properties", etc. But what is introduced is the term or concept. The entities, which we infer that

exist, mostly exist regardless of our language or concepts.[1] Trivial inferences ensure that the application conditions for terms are met in undisputed sentences, which allows us to infer the existence of a newly named entity. It seems that the objector who claims that Easy Ontology is doing something like pulling a rabbit out of a hat had confused the creation of the entities with the method by which we investigate the entities (the method to answer ontological questions). The Easy Ontology supports a position for the method of investigation.

Another problem, that is usually pointed out against Neo-Fregean metaontology, is that of bad company. This problem claims that although abstraction principles help us to solve certain ontological problems, these principles can lead us into undesirable situations. Thus, an advocate of the Neo-Fregean metaontology should provide a way of distinguishing good abstraction principles from bad abstraction principles. Unwanted situations are generated, for example, by a famous abstraction principle[2] that say the following:

$\varepsilon F = \varepsilon G$ if and only if $\forall x(Fx \leftrightarrow Gx)$

In other words, the extension of F and the extension of G are equal only if F and G are coextensive. This abstraction principle is problematic because it leads us to a case of Russell's paradox. This occurs because it allows there to be a concept whose extension is defined by the elements that do not contain themselves. Then we could ask whether this concept, whose extension is described as "the elements that do not contain themselves", contains itself. We could have two answers: either it contains itself or it does not contain itself. In the first case, since the concept contains itself, by the description given for its extension, it does not contain itself. Taking now the second case, since the concept does not contain itself, by the description given for its extension, if it does contain itself.[3]. Summing up, we have good abstraction principles and we have abstraction principles like the one exposed above that lead us to a paradox. Then, the objector could demand that we trace a clear division between good and bad abstraction principles.

Similarly, the same problem can arise for Thomasson's Easy Ontology. In other words, there may be cases of rules for using terms that lead to undesirable situations. One such case is the following: suppose we want to introduce the concepts of *xheart* and *xliver* into our language. To do this, we have the following rules:

[1]The "mostly" here is because social entities, such as contracts and marriages, that are language-dependent

[2]Actually, it is a basic law in the Frege's *Grundlagen* (1884)

[3]This is a sample of what is called Russell's paradox

(A) If there is a heart and no xliver, then there is an xheart.

(B) If there is a liver and no xheart, then there is an xliver.

Note that (A) and (B), on their own, could, apparently, be taken as application conditions that introduce the terms xheart and xliver, respectively. However, xheart and xliver cannot both exist. Another case discussed by Thomasson is about introducing a concept called "wishdate", which names a person whose existence supervenes on another person's desire for a date. Despite the nonsense of such a concept, we could have the following condition:

(C) If x wishes for a date, then x gets a wishdate

Then, by having a situation where someone wishes a date, we could infer the existence of wishdates. But, even though (A), (B), and (C) could entail the existence of undesirable entities, they are seemingly well-formed application conditions. So, someone could ask whether we are counting too many things as rules of use. Thus, we need to distinguish the problematic conditions from the good conditions (i.e., like those exposed in the latter chapter).

First, it should be reminded that the idea of application conditions is to be deemed as introduction rules for new terms to a linguistic framework. For Thomasson, cases like (A) and (B) differ from the trivial inferences shown in chapter **3**, because, in these problematic cases, we do not have an introduction of the relevant terms or concepts. Take (A) as an example, we cannot say that the application conditions for "xheart" have been met if the antecedent is true. This is so because we do not know what it takes to be an xliver.[4] Hence, it seems that we need a new requirement. The rules of use, represented by the conditionals in trivial inferences, must correctly introduce the new terms and concepts. For this reason, Thomasson formulates three criteria that restrict which conditionals are acceptable.

Let L be an original, non-extended language. In order for new terms and concepts to be introduced correctly into L, we have the following criteria:

1. The term must be introduced via a conditional that provides a sufficient condition for its application. It needs to be done in such a way that the conditional uses only terms from L and/or other terms already introduced to L.

[4]We should know in advance what an xliver is, but, when we take it together with the introduction of the xheart, we derive the problem.

2. Introducing this term should not analytically imply something that was not analytically implied from the truths already expressed in L. That is, the introduction of the new term should not add a new commitment.

3. The term must be associated with a sufficient condition of co-application that allows us to make judgments of identity or differentiation.[5]

In principle, these conditions shall rule out the cases of conditionals that lead to undesirable situations, while keeping intact the conditionals that work for Easy Ontology. In the case of the xheart and xliver, for example, criterion 1 is enough to disregard it, because (A) and (B) use terms that have not already been introduced to the non-extended language. Moreover, criterion 2 disqualifies (C) as an application condition, since it clearly adds new commitments for the L. It's worth noting, however, that these criteria are not absolute. It would be conceivable to find some example that shows that we need more criteria. The idea here is to show that it is possible to find a justified way (in this case the justification is to expand L by introducing new terms and concepts) of separating acceptable conditionals from unacceptable conditionals.

These are some of the possible objections that Thomasson answered in *Ontology made Easy* (2015). A first point worth highlighting is that Easy Ontology is not a closed theory, we could investigate other rules besides application conditions (we could mention, for instance, co-application conditions, that can provide us with criteria for when to reapply concepts)[6] that will help us to avoid some future problems. A second aspect is that these answers, in a way, anticipate the role that Easy Ontology assigns to metaphysics. Part of what worried some philosophers about Easy Ontology giving existence based only on linguistic criteria is that these philosophers attach deep importance to metaphysical discoveries. For them, metaphysics is unfolding the deepest nature of reality. In Thomasson's approach, instead, the role of metaphysics is a little more humble. As it was said, with trivial inferences we are just finding a way to answer "what there is?", that is, the role of ontology is not to unravel reality, but rather to infer, through linguistic aspects, how we could answer whether there is something or not. Thus, the investigation that should concern metaphysicians (and consequently, ontologists) is the conceptual part, not a deep discovery about reality. That is what we are going to see next.

[5] cf. Thomasson, 2015.

[6] It is not our focus here, but it can be used as identity criterion.

4.2 Turning it easy

When we read about Thomasson's Easy Ontology, we see that her metaontology is famously recognized as deflationary. This means that there is some concept that she deals with less philosophical weight than the majority of philosophers. It would be no absurd to think that a deflationary metaontology deflates the concept of existence. Yet, her approach is deflationary because there is a deflation of ontological debates. That is, Thomasson's way of understanding the ontology (basically as answering internal questions) gives us a hint that the debates in the ontology are pointless because the question is so *easy* [7] to answer, that serious debates about the existence of numbers are out of place. So, it is not that existence is meaningless in this metaontology, but that the ontological discussion is less relevant than the other approaches tend to imply.

In addition to the ontological outputs, we have seen, adopting a metaontology could affect our view of metametaphysics. Let us say, then, that we adopt a Thomassonian Easy Ontology. We need to know what is going to be the new guidelines for investigating such entities (and their properties). In consonance with Carnap, Thomasson argues that we should deal with metaphysical questions as asking, pragmatically, about the use of some concept. So, her suggestion is that the efforts should be devoted to the use of the terms. In other words, what advantage do we get in adopting certain frameworks (what is the function of the concepts of the framework)? And given that, should we or should we not adopt such a framework? For example, in sports, we have some modalities in which a person joint efforts with an animal to dispute a game (e.g., horse riding). The question is, who is going to be correctly called "athlete"? Some would advocate that only the horse is the athlete; others think that only human beings could be athletes; and maybe someone thinks that both of them should be considered athletes. In sum, there are disputes about how (and whether) we should use some concepts, and for her, that is what matters for metaphysics.

Well, we still have to know how to apply this model to metaphysics. Let's analyze the case in the ontology of mathematics. As we saw, this debate, roughly, revolves around accepting or not the existence of mathematical objects. Platonists are going to claim their existence and nominalists are going to deny it. Now, interpreting this discussion in the light of Thomasson's metametaphysics, we could charitably say that nominalists are defending that we could translate mathematical sentences, without any

[7] As was probably already clear, the answer is easy not because we could do it in bar conversations, but in the sense that it is straightforward answered given a conceptual analysis (and, sometimes, an empirical knowledge).

disadvantages, so that they do not refer to mathematical terms. On the other hand, platonists defend the idea that we will have disadvantages when excluding number terms from our language. Other cases could be mentioned, for example, when a metaphysician claims that a work of art cannot survive small changes in its parts, we could understand it as defending a revision of our practices of reapplication of the term "art". Then, we could understand these metaphysical debates as some kind of *metalinguistic negotiation*, which is a notion (originally from metaethics) that refers to debates that involve the negotiation for the appropriate use of some concept.

It should be noted that this is something like a revisionist narrative for such debates. Advocates of the positions we have seen in chapter **1**, mainly, do not believe that what they are doing is negotiating for how we should use the concepts in discussion. For them, just like scientists are discovering reality, metaphysicians are unveiling the most fundamental part of that reality. They could claim that the difference resides in the fact that metaphysics, unlike science, deals better with abstract objects. However, the metalinguistic negotiation narrative provides a good way to understand the debate. It not only maintains the debate as it was, that is, we do not need to change what the philosophers are saying (the changes were on how we interpret what the philosophers are advocating for), but, further, it gives us a hint of what metaphysics should be concerned with. For Easy Ontology's advocates, if discovering which entities exist is so straightforward, the work of metaphysics should be more concerned with conceptual analysis. It also gives a different position for philosophy when compared to science: we are not investigating the fundamental parts of reality, but doing conceptual work.

Yet, so far, it only explains how to interpret some metaphysical debates, we still have to know, additionally, how to proceed with the works in metaphysics. That is, by accepting that we ought to interpret past discussions as metalinguistic negotiations, we still ought to know how this can be used for new investigations and debates in metaphysics. Following the steps shown so far (with a focus on the usage of the concepts), it is clear that we should keep a pragmatic approach. This pragmatist position for metaphysics is the path that Thomasson led her metametaphysics. She defends, then, that the works in metaphysics should rely on some kind of reverse engineering in which we aim to determine what function some terms serve. That is, we need to trace what advantages we have in augmenting our language with such vocabulary (mathematical terms, modal terms, property terms, etc.). Having determined such a function, we should take a step back and investigate whether this is a function that we want to preserve.

To fully understand the project, we could split the name. First, for the analogy

with engineering, let us consider a civil engineer. We could roughly consider that a civil engineer could be requested for two kinds of work: either to make something new (a bridge, a building, a house, etc.) or she could be requested to assess some constructions already built (whether a bridge is stable, or maybe whether the building could still resists to earthquakes and storms). The last one is what we could call reverse engineering. Then, what Thomasson is pointing out is that, when we are dealing with metaphysics, our works should be more focused on doing something like a reverse engineering of concepts. When discussing conceptual engineering in philosophy, she said:

> "We may need to examine our concept of truth, or freedom, or person. Do these concepts lead us into paradoxes, unresolved questions, or unacceptable conclusions? Or it may focus on reconstructing our old concepts in a changed context – in the current social and technological context, what concepts do we need of intelligence, privacy, information, disease, and so on? Or it may focus on constructing new concepts to cope with and often reshape our social reality or our methods of inquiry – introducing concepts such as sexual harassment, genocidal rape, gene, or autism." (Thomasson 2021, p. 10.)

Thus, in doing conceptual engineering, we should investigate why the concepts were introduced in our language (or created); whether these concepts still fulfill their original purpose; and whether they have acquired new nuances of meaning. For her, this is the conceptual engineering we should be doing in metaphysics. Here, instead of evaluating buildings, we ponder the function of the concepts.

One thing that remains to be understood is what we can consider to be the function of a concept. It seems that this is a topic that Thomasson intends to expose more fully in her future works. On this subject, there is not much to be said yet, but we can share some important insights for understanding what Thomasson intends with her conceptual engineering. Roughly speaking, consider language as a toolkit we can use to communicate, order, create states of affairs, etc. We can certainly say that a toddler using language can do fewer things than an undergraduate student. If the vocabulary of this toddler is composed only of the word "mommy", she might, for example, order something by saying "mommy!" or even call their parents attention to the fact that she is hungry. Nonetheless, She cannot describe her day's experiences or even make a more refined request such as "I want to eat chocolate ice cream". Then we could say that the toddler's linguistic toolkit has fewer functions than the undergraduate student's. Furthermore, if we consider the case mentioned above, about horse riding, the term "athlete" has some

functions for us. We could say that "athlete" is a term used to tell which beings are allowed to be meritable in such-and-such competitions. Some could say that it defines which one is authorized to compete for some specific kind of reward. Summing up, to analyze the functions of a concept c is to consider which things we can do with c that we cannot do without c.

Let us consider, for instance, the debates about the existence of mereological sum. That is, we want to investigate whether something like the entity composed of the sum of my nose and Mount Everest exists. As we saw, for Thomasson, there is no mysterious method to answer whether these things exist. Given the application conditions for these terms (something like "if there is A and there is B, then there is the mereological sum of A and B"), and given that these application conditions are fulfilled, we would say that mereological sums exist (in this case, my nose-Mount Everest). However, this is too easy to be an interesting subject for extended debates. A more interesting debate is about whether we should maintain the vocabulary about mereological sums. Some could advocate that such vocabulary is useful when we want to formalize a theory about parts and wholes. But another could reply by saying that it is employed only by ontologists who are scared of accepting sets or other abstract objects.[8] In sum, the turning point in her metametaphysics is that we should investigate metaphysics by discussing, pragmatically, what functions certain concepts play in our lives. As she said:

> "The broader, more interesting question, however, is whether in general we should retain the language of mereological sums, or a conceptual scheme like that outlined in General Extensional Mereology. To answer this, we must ask what the function of that scheme is.[...] Put briefly, the response to the question 'are there mereological sums' is, 'well, if you're going to adopt that terminology, of course we should say there are – but why would you want to do that?' "(Thomasson, 2018, p. 148-149.)

Then, by tracing back the functions certain concepts have, we could discuss if this is a function that we should maintain in our language. Moreover, given that it is, we still ought to discuss how these terms should be used. For instance, in the case of horse riding, besides knowing that "athlete" is an important concept for us (performs a function that we would like to preserve), we still have to know how it should be applied.

Hence, adopting an Easy Ontology involves more than just a methodology that says how to investigate the existence of entities. Embracing such metaontology implies

[8] cf. Thomasson, 2018.

that we have a deflationary view of the debates in ontology, which means that we have to charitably re-understand what the disputants are doing in these debates. Further, it means that we have to tell how the metaphysicians should be working. In Thomasson's approach, we could interpret the traditional debates as metalinguistic negotiation, that is, disputes about the correct use of some concepts. This indicates how we should continue our work in metaphysics. For her, the work in metaphysics should be focused on tracing, pragmatically, the functions that the concepts in dispute have. After that, we should discuss first whether we want to keep this concept in our language, balance the costs and benefits for the framework, and then analyze how we should use such a concept. That is, we should engage in conceptual engineering.

4.3 The Benefits

But well, we saw a sketch of how an Easy Ontologist could avoid some objections. Further, we saw which metametaphysical consequences we have in adopting such an approach. Yet, we still need to understand what advantages we get from adopting the Easy Ontology instead of a version of Quineanism or Meinongianism. First, if we try to summarize some general problems of metaphysics, three topics should be listed: one is that it tries to pair the discoveries from metaphysics with that of science; a second one is that over the years it has not arrived at some consensus, instead what we see is a proliferation of positions; and finally that the methods for working on its subject are too mysterious. When it comes to ontology, we have the same problems. What we have is a bunch of positions concerned with telling what *really* is in the world; as is usually said, the ontologists are discovering the world's furniture. Because of that, following a path similar to a biologist who discovered the existence of an unknown species, ontologists can deem her work as if she is discovering the entities that exist in the world. This is a problem because it gives a wrong picture of the work of philosophy. Continuing the comparison with biology, suppose that a philosopher goes against the scientist's conclusion, that is, the philosopher claims that such a species does not exist. It seems that the most reasonable position is to stay with the scientist's judgment. In other words, rivaling with science is always a disadvantage for philosophy.

Aiming to avoid such rivalry, traditional methodology follows two paths: it could seek a more naturalistic metaphysics, in which it would only be allowed to discuss the entities postulated by scientific theories; or it could be said that metaphysics is, like science, unveiling the reality, but it is more general than science. The first option seems to

undermine too much the importance of metaphysics. The second path, otherwise, tends to maintain the conflict with science. Either way, in the attempt to pair philosophy with science, traditional metaphysics ends up generating suspicion. Especially, combining this attempt to pair science with the lack of convergence in results, ends up in skepticism as is shown by Stephen Hawking:

> "... people have always asked a multitude of questions: How can we understand the world in which we find ourselves? How does the universe behave? What is the nature of reality? Where did all this come from?.... Traditionally these are questions for philosophy, but philosophy is dead. Philosophy has not kept up with modern developments in science, particularly physics. Scientists have become the bearers of the torch of discovery in our quest for knowledge." (Hawking and Mlodinow, 2010, apud Thomasson, 2021, p. 7.)

Hence, posing metaphysics as discovering reality, just like science, has generated suspicion for the philosophical side.

As depicted in section **4.2**, Thomasson's approach advocates a more pragmatic path to metaphysics. In this sense, there is a clear division of labor between metaphysics and science that prevents any kind of rivalry. The discovery of reality is a work for scientists, the work for metaphysics is more concerned with the concepts. Metaphysicians should, then, balance the benefits and costs of each concept (and framework of concepts) and provide us with results of what we ought to consider in augmenting our language with such-and-such concepts. Some could say that it also undermines the importance of metaphysics, but philosophy gives us many examples of how the use of our concepts matters. We could say that depending on what we claim about what is a species, it would make a difference in what we do to preserve biodiversity. We could even mention what Miranda Fricker called hermeneutical injustice (Fricker, 2007), which happens when someone suffers an injustice but leaves in a society that does not even have the concept to describe it, which impedes the victim from, for example, reporting what happened.[9] Thus, it does not seem that this pragmatic approach, just by focusing on our use of concepts, would diminish the importance of metaphysics.

Speaking of the lack of consensus, when the ontologist comes to a conclusion, we do not have parameters and criteria to say for sure that something exists. Because of that, we can have a proliferation of positions due to the lack of common criteria to

[9]We believe that the appendix, in chapter **5**, provides another good example.

tell when we could say that something exists. In responding to this, we could highlight that the metaontological endeavor itself can be focused on establishing clear methods and parameters for ontological work. Then, in a sense, every metaontolgical approach could be a helpful tool to turn the works in ontology more clearly and to establish a common ground for the discussion. Consequently, here we have a favorable point to all the approaches mentioned before. Maybe, in this aspect, the additional advantage of an Easy approach is that of stipulating a straightforward and direct way to answer ontological questions. Perhaps such a method would be more productive in overcoming the lack of convergence since in the Easy approach we are going to take the pragmatical position for the ontological debates. Moreover, the fact that the ontological questions could be trivially answered shows us that, maybe, we should focus our philosophical efforts on another question. That is, it gives us direction for what we should do next. Maybe, for example, we should not focus on whether *free will* exists, but instead, whether it should be more similar to what a *compatibilist* defends or more like a *hard determinist*. In other words, this approach not only provides us with a clear method for working on ontology but also provides us with the path we should follow for future works in metaphysics.

But there is one more factor that gives an advantage to Thomasson's approach: trivial inferences show us how we could know such entities in dispute. The trivial inferences work not only as a method to infer the existence of some entities. It also makes explicit how certain concepts entered into the language, which clarifies how we know such concepts. To elucidate this point, consider the debate on the ontology of mathematical objects. As we describe in Chapter 1, Easy Ontology will clearly yield one branch of the realist position. It would probably claim the negation of (iv) and that the arguments, just like the one shown in Chapter 3, are just what we need to say that numbers exist. But the question of how we know such entities goes side-by-side with the one asking for their existence. For Easy Ontology, the existence is fully associated with application conditions (a linguistic rule). Further, trivial inferences are a way of making explicit how the rules of use can lead an undisputed sentence to a sentence that expresses an ontologically loaded proposition. So, if we know what are the rules for the terms and how to apply them, we get an explanation of how such concepts enter our language. For instance, through trivial inference 1, we have an explanation of how we assess the concept "numbers" (specifically number five). Then, the outcome of Thomasson's approach is not only a realist position on the ontological debate of mathematical objects, but it is also a way to conciliate realism with an explanation of how we know such objects.

Therefore, Easy Ontology, like other works in metaontology, could help to

make the ontological work clearer by stipulating some common parameters and a method of investigation. Besides that, we saw that it makes more evident the division of labor between science and metaphysics, which avoids some possible rivalry with science. But, the most important thing, it overcomes some mysteries that are present in many ontological investigations, for example, it exposes an explanation of how we get acquainted with the entities questioned by the ontological discussion.

Chapter 5

Another Case Study

In investigating Easy Ontology and its results, we might face other topics that could benefit from an approach such as the one described in the dissertation; namely, the interpretation of quantum mechanics (from here on QM) proves itself to be an interesting case study for the application of the metaontological tools so far presented. As we saw, Easy Ontology is a metaontology theory that says that we can respond to ontological questions straightforwardly by employing rules of use, like application conditions, for the terms. These application conditions are associated with the framework of the objects in dispute. That is, when someone masters a certain linguistic framework, she learns the rules of use for the terms in that framework and then knows when the terms (related to that framework) are correctly applied. But, when we are dealing with QM, what is the appropriate framework? An addendum we need to point out, here we are assuming, along with Ney (2021) and Arroyo and da Silva (2021) that the "framework" in question is the "quantum interpretation" one picks. An interpretation, in its turn, is a solution to the measurement problem (Arroyo and da Silva, 2022). The measurement problem is, roughly, the problem of explaining why we measure single definite outcomes when the mathematical apparatus of the theory says we should measure a superposition (i.e., a sum) of outcomes. Solving the measurement problem means, among other things, to provide an ontology (Arroyo and Arenhart, 2022).

Aiming to analyze questions like these, the present chapter is an attempt to see how could an easy ontologist deal with the problem of framework choice in QM. The suggestion here is that our metametaphysical outtakes (i.e., interpret metaphysics as metalinguistic negotiation and advance the investigations through pragmatic conceptual engineering work), outlined in chapter **4**, could be a helpful tool for a metaphysical understanding of QM. We show, then, that we could interpret such discussions as metalinguistic

negotiations. Because of that, we will summarize the cases in QM which could engender some problems for ontology and the interpretations about them. Finally, we propose a discussion about which questions we should keep in our ontological investigation, how we could interpret the disputants in QM ontology as negotiating for the use of the terms, and which benefits the metalinguistic negotiation interpretation could bring to QM.

5.1 A problem within quantum mechanics

As we are about to see, QM is an interesting case study for the metaontological discussion we had throughout this dissertation, because we could have more than one framework to explain some puzzling quantum phenomena, but each of them posits different entities. That is, their ontological commitments are different and the way they ponder the costs and benefits of their approaches are also different. Then, what rest for us to investigate is which framework we ought to deem as relevant for each phenomenon. Let us see, for example, the phenomenon of superpositions. Suppose we have a device that calculates the position (and only the position) for each electron. Assume we have just two possible positions for the electron, **A** and **B**. A scientist engaged in investigating QM would describe this situation as probabilistic, that is, with some probability, we will observe a measuring device measuring the position **A**, and with other probability, we will see the device measuring the position **B**. This situation is formally described by the following formula: $e = \alpha e_A + \beta e_B$, where '$e$' represents the electron, e_A represents the electron in location **A**, and $|\alpha|^2$ the probability for e_A to be the case and *m*utatis mudandis the same goes for e_B and $|\beta|^2$. In other words, the whole state is described as a probability for the electron to be in two different locations. But, a layperson could ask: is the electron in **A** or is it in **B**? Standard QM will respond: it is not the case that the electron is in **A**, it is not the case that it is in **B**, it is not the case that it is in **A** and **B**, and it is not the case that it is not in **A** and not in **B**. The electron is in a state called superposition.

Here the behavior of QM entities begins to challenge our intuitions because intuitively it seems that the electron in question ought to be in **A** or **B** or neither in **A** nor in **B**. Aiming to analyze this counterintuitive aspect of QM, the Schrödinger's cat thought experiment is usually used to better visualize this response provided by standard QM: suppose we have a box with the device mentioned earlier along with a detector, a vessel with sleeping gas, and a cat. If the electron is detected in **A**, the detector will open the vessel and then will put the cat to sleep. If the electron is detected in **B**, nothing occurs, that is, the vessel will stay closed and the cat will stay awakened. However, as

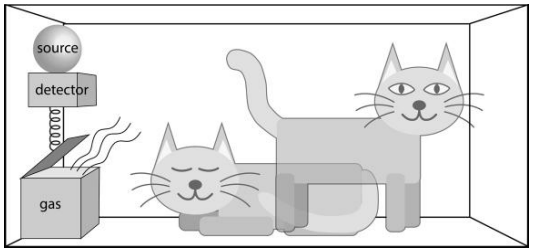

Figure 5.1: Schrödinger's Cat (obtained from Carroll, 2019, p. 258

we know, before we observe it, the electron is in a superposition of states. It is probably in **A** or it is probably in **B**, but it is not actually in any of these positions yet. Hence, the detector is also in a superposition, since it could open or not the vessel, according to the position of the electron. Moreover, the cat is also in a superposition, because of the superposition of the detector (see Fig. 5.1)[1]. Thus, we could have that the state of superposition is transferred from electrons to bigger objects (a chain of superposition that goes through quantum objects to macro objects). Nevertheless, in nature, we do not see observable objects in a superposition of states. In the situation exposed, when the box is open, we will see the cat awakened or sleeping; the system is *collapsed* (this evasion from superposition is called collapse).

To analyze this problem, von Neumann (1955) has decided to fragment it into three levels: in the first, we have the quantum-mechanical entities; in the second, we have the measurement device; and finally, in the third, we have the *abstract ego*, i.e., the consciousness of the observer (Arroyo and Arenhart 2019). For him, the chain of superposition could not get through the third level, since the conscious mind is the thing that takes the object away from the superposition state. By the moment a being with a conscious mind examines the system, it blocks the chain of superpositions (and the cat would be awakened or sleeping). The observer with a conscious mind is what collapses the system. This is why we, the observers do not see macro objects in a superposition of states.

Nonetheless, with this Consciousness Causes Collapse Hypothesis (CCCH)[2], we create more problems. Yes, we solve the chain of superpositions, since we do not have macro objects in superposition anymore, but we have an additional commitment to the existence of a mind. Also, this mind should not be reducible to physical matter, and this mind ought to have some kind of causal power to the physical matter (once it is

[1]For a more accurate explanation of this thought experiment, see Becker (2018) and Carroll (2019) (from where we take the Figure 5.1).

[2]Term taken from de Barros and Oas, 2017.

the conscious mind that collapses the system). Basically, we solve the problem of macro objects in a superposition of states, but it has a cost: we have to pay with a commitment to an independent mind (isolated from the physical world, but with causal powers).

Alternatively, Everett (1957) has proposed an interpretation in which he considers the result of Schrödinger's equation, that is, he explicitly rejects that superpositions collapse into single outcomes.. Then, he refuses the idea that the measurement gives us a unique result. So, when we see the device in the case of Schrödinger's cat, the electron is in **A** or is in **B**, but each of such results occurs in separate worlds. Thus we have a many-worlds interpretation, where in each branch (or world) we observe the electron in a different position (see Lewis, 2016). Hence, the "many worlds interpretation" (MWI).

With this understanding we also have costs. For example, with the Everettian many-worlds interpretation, we ought to be committed, in a certain degree, to an ontology with a plurality of worlds.[3] Furthermore, with this interpretation, in every situation, as the Schrödinger's cat thought experiment, we would have the certainty that the world will ramify into branches, but, for physicists, the probabilities were the good part of the QM. Then, taking this interpretation forces us to find a way to recover the probability we had before.

The point here is not to show that we could not give one best interpretation for QM, but to show that we could have at least two ontologically-different (or two ontological frameworks, so to speak) ways to understand quantum phenomena. Without taking sides on which interpretation would be the most appropriate, CCCH and MWI advocates supposedly know the costs and benefits of each position, and the discussion between them ought to weigh up these things to decide on the appropriate framework. In sum, we have two different explanations, with two different costs and commitments, yet we have just one reality. Then, given that the Easy Ontology, like Thomasson's, relies on the application conditions given by the framework, we still have to present a way to decide between these two explanations, or else we still do not know which framework we are dealing with, and hence we still do not know how to answer ontological questions for the QM.

5.2 How the problems should be engaged

As we saw in chapter **3**, Thomasson has a strategy that answers ontological questions trivially by the application conditions of a term. So, different from what is usually thought

[3]It is worth emphasizing that Everettian interpretation can *a*lso be interpreted (sic) as a single-world interpretation (Arroyo and Arenhart, 2022).

about Carnap, Thomasson interprets his work not as endorsing a kind of deflationism about the objects (even though she thinks that it deflates the debate). For her, Carnap would defend, for example,[4] a realism about mathematical objects. In other words, Thomasson does not believe that a Carnapian ontology would be neutral. Contrarily, it would give us clear answers for what exists. Then, with Easy Ontology, we will get that the entities posited by the QM exist (at least once their terms have application rules fulfilled). However, since we have at least two options for metaphysical interpretation, CCCH and Everettian Many-Worlds, we also have two frameworks to take into account when discussing the ontology of QM. Each of them has benefits and costs. Will Easy Ontology engender an ontology with entities postulated by both interpretations? No, and we are going to see why.

Thomasson engaged herself in the debate about metametaphysics in general (as we see in her paper 'Changing metaphysics: what difference does it make?' (2018)). About this subject, as we observed, she proposes a new way to work on metaphysics, given the Easy Ontology. In a Carnapian style, if we get the ontological questions internally to the framework, we know that deriving the answer to the ontological question is easy, but, based on the standard metaontological approach, the reply usually says that: it is not what we are searching for, we want to know what there *really* is. But remember, for Carnap, this is more likely an external question, which is interpreted as asking whether we should or not adopt a certain framework. It is a pragmatic decision, and that is what Thomasson follows. For her, we should pay attention to the functions such concepts and their frameworks play in our language. In a Thomassonian way, we saw that we have a method for discussing the use of concepts. For her, the work of metaphysics should be engaged as metalinguistic negotiations. In other words, the debate shall be focused on balancing the benefits and costs to what is relevant for us. In her words:

> "[...] I have argued for reconceiving of some of the most difficult, interesting and persistent of metaphysical debates (considered now in the mode of what Carnap would have called 'external questions') as implicitly engaging in metalinguistic negotiations: that is, pressing for adopting, preserving, modifying or rejecting elements of our conceptual (or linguistic) scheme by *using* the relevant terms, in the object language." (Thomasson, 2018, p.143-144.)

Then, adopting the whole package of Thomasson's metametaphysics would include Easy Ontology and the practice of metaphysics as a metalinguistic negotiation.

[4]Carnap work has a bunch of different interpretations, but recently many have interpreted him not as ontological neutral (see Arroyo and da Silva, 2021).

This is going to be useful in QM, because, as we saw, we have clear the costs and the benefits for both interpretations. The point here would be to determine and debate what notions are more worthy for us in the endeavor to investigate reality. When we choose CCCH, instead of Everettian Many-World, we are taking the independent mind as more valuable, i.e., it is more worthy to deal with these notions (and work with its inconsistencies in other areas), than to assume an ontology with a manifold of worlds[5]. In sum, the work of a metaphysician invested in providing an interpretation for QM and that assumes Easy Ontology would be the following: to check the costs and benefits of one interpretation; to check the incompatibilities that this interpretation will engender with other metaphysical views; and to debate, in a kind of metalinguistic negotiation (as we saw in chapter **4**, conceptual engineering), which interpretation preserves what we want in a QM framework and which interpretation we should maintain based on the previous steps.

Moreover, one benefit for QM here is that adopting an Easy Ontology approach gives them the possibility to maintain the work in progress for the best ontological interpretation of QM. That is, it allows physicists to work with and use QM without metaphysical inquiries, in their urge to interpret such challenging entities, interfering with scientific proposals. The physicists have a justification for continuing the application of QM to technology, for example, despite any possible metaphysical inconsistency for the measurement of the position of a particle. In other words, there is no rivalry with science here, but rather the use of metaphysics as a conceptual aid for QM.

Therefore, even though, an Easy Ontology approach could deal well with questions about the existence of the entities postulated by a QM framework (in the sense that, given a framework, we have a method to tell what exists), that is not all there is to discover. Once we have a plurality of interpretations for QM, one important task to undertake is to provide a way to discuss and choose the most appropriate interpretation. In order to illustrate it, we saw two of these metaphysical interpretations: CCCH and MWI. Then, we need to choose what framework we are going to consider: a framework that embraces CCCH with its benefits and costs, or a framework that embraces the MWI. Thomasson has also shown a good way to deal with discussions like this in metaphysics. According to her view of metametaphysics, we should work in metaphysics as a metalinguistic negotiation, that is, answer pragmatically which framework or concept we should maintain and which we should refuse. Thus, to know which interpretation we ought to

[5]It is good to note that here we simplified the debate. Actually, there are not just two interpretations for QM, but a bunch of them.

consider, we should dedicate our work to discussing which interpretation is more worthy based on what we value in a scientific endeavor (that is, we should analyze the functions the concepts plays and should play in the framework), e.g., we should discuss whether we are disposed to, against nowadays science, embrace a dualism (physical and mental) in ontology (which seems to be a natural consequence for CCCH).

Conclusion

Therefore, it is a fact that metaphysicians have been trying to solve existence questions about some puzzling entities, one kind of them being mathematical entities. With the metaphysical approach, we saw a proliferation of different views that did not seem to arrive at any common resolution. On the contrary, the metaphysical approach has generated a proliferation of different positions without providing some epistemological route for metaphysical entities. So, it is common to see metaphysicians talking about some mysterious entities such as abstract objects, *possible worlds*, *qualia*, etc., without giving us clear conditions to know which conditions we need to fulfill in order to be allowed to say that there is such-and-such entity. Metametaphysics and metaontology, more specifically the methodological aspects that they propose, were the path taken by many philosophers in an attempt to find a solution to this myriad of positions.

Now, let us face it, we still have a myriad of positions in metaontology. We not only have the main Quinean and Meinongian path, but also a multitude of derivations of these positions (not to mention Easy Ontologies). However, what needs to be valued is that there is an effort to make metaphysical principles more clear. In other words, in metaontology, there are attempts to elucidate what it means to say that something exists and how to investigate what exists. This project itself could help us to suppress the profusion of positions. Moreover, we have a concern about defining what is the objective of an ontology, and how could we work towards this objective. Because of that, a metaontological discussion could clarify the path through the resolution of existence questions. But, as we can notice, the metaontological project is not always ontologically innocent. In the sense that, having such guidelines for investigating ontological questions will influence what we take as existent or not, and this is taken into consideration when adopting a certain approach. Someone who has to choose between one of the approaches depicted above would know that, for example, some Quinean metaontology could be used to justify nominalist tendencies. Moreover, adopting an Easy Ontology is almost like a justified way to maintain some realist tendencies. In some sense, someone about to accept

Easy Ontology knows that it yields a realist position, and this could be taken into account when compared to other methodological approaches that would yield another ontological result.

Moreover, adopting a certain metaontological position exposes what one thinks about the role of metaphysics. That is, when choosing a methodological path, it is good to also take into consideration what vision we want to advocate for metaphysics in general. For instance, as we saw, adopting an Easy Ontology will entail a vision for metaphysics in which ontological debates are deflated (not the entities, but the discussions themselves). To be more precise, given that ontological questions could be so straightforwardly responded to, it might be the case that we should not give so much importance to investigating whether there is something, but to conceptual aspects of the concepts we use. Furthermore, Easy Ontology has as a result that we ought to focus on whether and how we should use some concepts, and that is where metaphysicians should spend their efforts. For this approach, then, the role of metaphysics is to discuss, in a metalinguistic negotiation, what function some terms have and if we need to maintain this function in our vocabulary.

Despite the fact that the metaontological endeavor in itself has assembled metaphysics with many fruitful insights (helping it to clarify the work that metaphysicians are doing in ontology, and helping it to turn more understandable the role of such investigations), as we saw in Chapter **4**, Thomasson's approach has its advantages. The Easy Ontological approach provides a better division of labor between metaphysics and science, i.e., the philosophical part is more focused on the conceptual investigation (conceptual engineering), and the scientific part is concerned with the investigation of reality. Nevertheless, this is done in a way that does not take away the importance of metaphysical investigation (Miranda Fricker's example shows that there are real impacts on the way we use concepts). Further, the approach derived from Easy Ontology can help us to epistemically demystify the entities and processes in the metaphysical investigation. If we take for instance the debate about mathematical objects, we get that, through trivial inferences, we have a path to explain how concepts such as numbers enter our language. So, it makes clearer how we assess the entities disputed in ontological debates.

Thus, we saw an example of an ontological debate with the exposition of the discussion about the existence of mathematical objects. We saw an overview of debates in metaontology through the dialogue between two of the main branches in that area (Quinean and Meinongian). In order to have an alternative to the debate in metaontology, we exhibited the Easy Ontology approach. After that, we saw what consequences,

effects on metaphysics (and metametaphysics), and advantages we would gain by adopting an Easy Ontological metaontology. That is, we saw a path to progress the works in metaphysics given the adoption of a methodological approach alternative to the traditional positions. Finally, with this investigation, we intended to present a brief summary of the current state of metaontological debates, to clarify what results we could expect from adopting a position in the metaontological discussion, and to present some motives explaining why the adoption of an Easy Ontology is a viable option in the metaontological debate.

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